



A.D. 1873, 17th SEPTEMBER. № 3056.

Treating Beer.

LETTERS PATENT to Alexander William Gillman and Samuel Spencer, both of the Castle Brewery, Saint George's Road, Southwark, in the County of Surrey, for the Invention of "IMPROVEMENTS IN THE MANUFACTURE AND TREATMENT OF BEER IN ORDER TO PRESERVE IT AND TO RESTORE IT WHEN IT HAS BECOME SOUR."

Sealed the 11th November 1873, and dated the 17th September 1873.

PROVISIONAL SPECIFICATION left by the said Alexander William Gillman and Samuel Spencer at the Office of the Commissioners of Patents, with their Petition, on the 17th September 1873.

We, ALEXANDER WILLIAM GILLMAN and SAMUEL SPENCER, both of the Castle Brewery, Saint George's Road, Southwark, in the County of Surrey, do hereby declare the nature of the natur Invention for "IMPROVEMENTS IN THE MANUFACTURE AND TREATMENT OF BEER IN ORDER TO PRESERVE IT AND TO RESTORE IT WHEN IT HAS BECOME SOUR," to be as follows:—

2 Hertofore it has been proposed in the Specification of Letters Patent 10 granted to Henry Medlock, dated March 30, 1861, No. 792, to employ a

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solution of sulphurous acid or some salt of sulphurous acid as a means for preserving fermented liquors, and this solution was added to the beer during some stage of the manufacture, but preferably after the alcoholic fermentation had taken place.

Now when using the mono-sulphite of calcium in the manufacture of 5 beer in order to preserve it from becoming sour a difficulty is experienced in its use on account of its insolubility. By our Invention however we are enabled to obtain all the benefits to be derived from the use of such mono-sulphite of calcium in the preservation of beer without experiencing any difficulty in the application thereof. 10

For the purpose of our Invention we employ a soluble salt of sulphurous acid, particularly the sulphites of potassium, sodium, ammonium, or calcium, in combination with a chloride or other soluble salt of calcium, or the precipitated oxide of calcium, or the carbonate of potassium, sodium, or ammonium. 15

The salt of sulphurous acid may be either the neutral or acid salt, the base being combined with either one or two equivalents of acid.

In order to preserve beer the combination we prefer to employ is the sulphite of sodium and the chloride of calcium, each dissolved separately in water in the proportion of about six pounds of the sulphite of sodium 20 in about a gallon of water, and about three and a quarter pounds of the chloride of calcium in about a gallon of water, and used in the proportion of about half a pint to a pint of each solution per barrel of beer.

The aforesaid solutions may be added separately at the same or at 25 different stages of the manufacture, or they may be used in the water to be employed for mashing, or in the beer after fermentation has taken place, or in the cask before or after having been filled with beer, or they may be mixed with the ordinary isinglass finings previous to their use in the beer. 30

Instead of adding these solutions to the beer, as before described, the casks to contain the beer may be rinsed out first with one solution, and then after allowing it to soak into the wood the cask may be rinsed out with the other solution; or the casks may be rinsed out first with a

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solution of the bi-sulphite of calcium and then with a solution of the carbonate of potassium, sodium, or ammonium, or with the precipitated oxide of calcium mixed with water.

In the treatment of beer which has become sour we employ a solution 5 of carbonate of potassium, sodium, or ammonium either together or separately, combined in the same solution with the sulphite of potassium, sodium, or ammonium.

In preparing this solution we prefer to employ about five pounds of carbonate of potassium and about twelve ounces of sulphite of potassium dissolved in about a gallon of water, or the sulphites of sodium or ammonium may be substituted for the sulphite of potassium, or the 10 solutions may be prepared by passing sulphurous acid gas into solutions of carbonate of potassium, sodium, or ammonium.

We also employ for this purpose calcic oxide or precipitated lime, 15 according to Letters Patent granted to us dated March 7, 1871, No. 607, combined with the sulphite of potassium, sodium, ammonium, or calcium.

We add these preparations to the beer in quantities suitable to neutralize the excess of acidity it may contain.

20 **SPECIFICATION** in pursuance of the conditions of the Letters Patent filed by the said Alexander William Gillman and Samuel Spencer in the Great Seal Patent Office on the 17th March 1874.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, ALEXANDER WILLIAM GILLMAN and SAMUEL SPENCER, both of the Castle Brewery, 25 Saint George's Road, Southwark, in the County of Surrey, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Seventeenth day of September, in the year of our Lord One thousand eight hundred and seventy-three, in the thirty-30 seventh year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said Alexander William Gillman and Samuel Spencer, Her special license that we, the said Alexander William Gill-

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man and Samuel Spencer, our executors, administrators, and assigns, or such others as we, the said Alexander William Gillman and Samuel Spencer, our executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, 5 use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**IMPROVEMENTS IN THE MANUFACTURE AND TREATMENT OF BEER IN ORDER TO PRESERVE IT AND TO RESTORE IT WHEN IT HAS BECOME SOUR,**" upon the condition (amongst others) that we, the said Alexander William Gillman and 10 Samuel Spencer, our executors or administrators, by an instrument in writing under our or their hands and seals, or under the hand and seal of one of us or then, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent 15 Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that we, the said Alexander William Gillman and Samuel Spencer, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly 20 described and ascertained in and by the following statement thereof, that is to say :—

H heretofore it has been proposed in the Specification of Letters Patent granted to Henry Medlock, dated March 30th 1861, No. 792, to employ a solution of sulphurous acid or some salt of sulphurous acid as a means 25 for preserving fermented liquors, and this solution was added to the beer during some stage of the manufacture, but preferably after the alcoholic fermentation had taken place.

N Now when using the monosulphite of calcium in the manufacture of beer in order to preserve it from becoming sour a difficulty is experienced 30 in its use on account of its insolubility. By our Invention however we are enabled to obtain all the benefits to be derived from the use of such monosulphite of calcium in the preservation of beer without experiencing any difficulty in the application thereof.

F For the purpose of our Invention we employ a salt of sulphurous acid, 35 particularly the sulphites of potassium, sodium, or ammonium, or the

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sulphite of calcium, in combination with a chloride or other soluble salt of calcium, or the precipitated oxide of calcium, or the carbonate of potassium, sodium, or ammonium.

The salt of sulphurous acid may be either the neutral or acid salt, the 5 base being combined with either one or two equivalents of acid.

In order to preserve beer the combination we prefer to employ is the sulphite of sodium and the chloride of calcium, each dissolved separately in water in the proportion of about six pounds of the sulphite of sodium in about a gallon of water, and about three and a quarter pounds of the 10 chloride of calcium in about a gallon of water, and these solutions are used in the proportion of about half a pint to a pint of each solution per barrel of beer.

The aforesaid solutions may be added to the beer separately at the same time or at different stages of the manufacture, or they may be used 15 in the water to be employed for mashing or in the beer after fermentation has taken place, or in the cask before or after having been filled with beer, or they may be mixed with the ordinary isinglass finings previous to their use in the beer.

Instead of adding these solutions to the beer, as before described, the 20 casks to contain the beer may be rinsed out first with one solution, and then after allowing it to soak into the wood the cask may be rinsed out with the other solution; or the casks may be rinsed out first with a solution of the bi-sulphite of calcium and then with a solution of the carbonate of potassium, sodium, or ammonium, or with the precipitated 25 oxide of calcium mixed with water.

In the treatment of beer which has become sour we employ a solution of carbonate of potassium, sodium, or ammonium, either together or separately, combined in the same solution with the sulphite of potassium, sodium, or ammonium.

30 In preparing this solution we prefer to employ about five pounds of carbonate of potassium and about twelve ounces of sulphite of potassium dissolved in about a gallon of water, or the sulphites of sodium or ammonium may be substituted for the sulphite of potassium, or the solutions may be prepared by passing sulphurous acid gas into solutions 35 of carbonate of potassium, sodium, or ammonium.

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We also employ for this purpose calcic oxide or precipitated lime, according to Letters Patent granted to us dated March 7, 1871, No. 607, but combined according to our present Invention with the sulphite of potassium, sodium, ammonium, or calcium.

In preparing this mixture we prefer to employ about 20 pounds of 5 sulphite of sodium and about 40 lbs. of caustic soda dissolved in about 40 gallons of water. To this solution we add a solution of the chloride of calcium dissolved in water (of the strength of about 40 lbs. of chloride of calcium dissolved in about 20 gallons of water) until there is a slight excess of the chloride of calcium present. The precipitate formed, 10 which consists of an intimate mixture of the hydrated calcic oxide and of sulphite of calcium, is washed several times with water by decantation to remove the chloride of sodium formed, and the water is finally drawn off till the bulk is reduced to about 12 gallons.

In order to neutralise acidity in beers we add these preparations to 15 the beer in the proportion of about one pint per barrel for every tenth of a per cent. of acidity the beer may contain in excess of that found in recently brewed mild beer, which varies from 0.1 to 0.15 per cent.

The mixture of calcic oxide and sulphite of calcium we also use for the purpose of preserving mild beers, for which purpose we add them to 20 the beer in the proportion of about a quarter to half a pint per barrel of beer.

This preparation may be employed either in the finished beer before or after racking the beer into the cask, or it may be used at any stage of the manufacture, as for instance it may be boiled with the worts in the 25 copper, or it may be added to the water used in brewing.

Having thus described the nature of our said Invention and the mode in which we carry the same into effect, we would have it understood that what we claim as our Invention is the employment in the manufacture and treatment of beer in order to preserve it and to restore it when it 30 has become sour of a salt of sulphurous acid, particularly the sulphites of potassium, sodium, or ammonium, or the sulphite of calcium in combination with a chloride or other soluble salt of calcium, or the precipitated oxide of calcium, or the carbonate of potassium, sodium, or

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ammonium combined and applied in manner substantially as herein described.

5 In witness whereof, we, the said Alexander William Gillman and Samuel Spencer, have hereunto set our hands and seals, this Sixteenth day of March, in the year of our Lord One thousand eight hundred and seventy-four.

ALEX. W. GILLMAN. (L.S.)
SAM^L. SPENCER. (L.S.)

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